
Persea pallescens, a New Combination for *Phoebe pallescens*
(Lauraceae, Perseeae), a Mistaken Taxon of Mexico and Guatemala

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ABSTRACT. Critical review of the morphology of *Phoebe pallescens* Mez shows that the species must be placed in *Persea* Miller subgen. *Persea* (Lauraceae, Perseeae) because of the pinninerved leaves, absence of domatia, stipitate staminal glands, well-developed staminodia, the pubescent gynoecium, flat hypanthium not developed into a cupule, and perianth lobes entirely deciduous in fruit. The new combination *Persea pallescens* (Mez) Lorea-Hernández, which is distinguished by its straight, appressed pubescence on leaves, is not a rare, local endemic as previously considered, but occurs along the eastern Sierra Madre in Mexico and in central Guatemala. The name *Persea pallescens* is lectotypified, and a key to separate the Mesoamerican species of *Persea* with a pubescent pistil is provided.

RESUMEN. Con base en una revisión crítica de la morfología de *Phoebe pallescens* Mez se concluye que la especie debe ser considerada en *Persea* Miller subgen. *Persea* (Lauraceae, Perseeae), debido a sus hojas penninervadas, la ausencia de domacios, glándulas estaminales estipitadas, estaminodios bien desarrollados, el gineceo pubescente, hipanto plano que no se desarrolla como una cúpula y lóbulos del perianto deciduos en el fruto. La nueva combinación *Persea pallescens* (Mez) Lorea-Hernández, que se distingue por su pubescencia recta y adpresa sobre las hojas, no es un endemita local y raro, como anteriormente se le consideraba, sino que se distribuye a lo largo de la Sierra Madre Oriental en México y en el centro de Guatemala. Además se designa el lectotipo del nombre *Persea pallescens* y se presenta una clave para separar las especies de *Persea* con pistilo pubescente en Mesoamérica.

Key words: Guatemala, Lauraceae, Mexico, *Persea*, *Phoebe*.

In his review of the American Lauraceae, Mez (1889) described *Phoebe pallescens* Mez based on a single collection (*F. Müller 90*), which was gathered in the vicinity of Orizaba, Mexico. According to Mez, the species was unique among the 45 species of *Phoebe* Nees recognized by him in having a pubescent pistil.

In subsequent reviews of the Mexican Lauraceae (Standley, 1922; Allen, 1945), the species was considered an endemic of very narrow distribution and known only from the type.

Later, Kostermans (1961) subsumed all the American species of *Phoebe* (including *P. pallescens*) under *Cinnamomum* Schaeffer, creating the name *C. pallescens* (Mez) Kostermans. However, a detailed study of the type material during a review of the Mexican species of *Cinnamomum* (Lorea-Hernández, 1997) showed that *F. Müller 90* belongs instead in *Persea* Miller. The pinninerved leaves, the absence of domatia in the axils of the secondary veins, the stipitate staminal glands, the well-developed staminodia, and the flat hypanthium not developed into a cupule firmly supported this generic affiliation. The flowers with tepals of similar form and size, the pubescent gynoecium, and the perianth lobes entirely deciduous in fruit place the species in *Persea* subgen. *Persea*.

***Persea pallescens* (Mez) Lorea-Hernández, comb. nov.** Basionym: *Phoebe pallescens* Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 218. 1889. *Cinnamomum pallescens* (Mez) Kostermans, Reinwardtia 6: 22. 1961. TYPE: Mexico. Veracruz: near Orizaba, 1853, *F. Müller 90* (lectotype, designated here, LE; isotypes, BR, K, NY).

Persea perglauca Lundell, Wrightia 5: 147. 1975. Syn. nov. TYPE: Guatemala. Baja Verapaz: Unión Barrios, 16 Apr. 1975, *C. L. Lundell & E. Contreras 19217* (holotype, LL not seen; isotypes, F, MO).

Persea parvifolia L. O. Williams, Econ. Bot. 31: 320. 1977. Syn. nov. TYPE: Mexico. Veracruz: above Tetla, Mun. Chocamán, 17 Oct. 1947, *L. O. Williams & F. W. Popenoe 13511* (holotype, EAP not seen; isotype, F).

The original material of *Persea pallescens* does not have mature open flowers, but only buds in different developmental stages, and the collected fruits were diseased. Therefore, part of the problem was to associate further collections of the species with open flowers and normal fruits with that of the type. Unfortunately, in the diagnosis and original description, Mez (1889) introduced an error when he described the species as having leaves and flowers

glabrous. Examination of the type material showed that old leaves can sometimes be glabrous, but younger leaves are consistently sparsely appressed pubescent abaxially, as is the abaxial side of the tepals, particularly those of the inner whorl. The sparse, closely appressed pubescence of the abaxial leaf surface is, in fact, the principal character state that distinguishes this taxon.

The misleading presentation of the species by Mez has since contributed to an incorrect application of the name, and conspecific material subsequently collected around the type locality or from other areas has been overlooked. Most material of the species is filed in herbaria as *Persea americana* Miller, but this species has loose extended hairs forming the sparse to dense pubescence on its leaves. The same type of pubescence occurs in *P. schiedeana* Nees, the only other species of the subgenus *Persea* recognized by Kopp (1966) in America that has not been considered synonymous with *P. americana* (van der Werff, 2002). In searching for a possible previous name or synonyms of *P. pallescens* in *Persea*, careful examination of the types for synonyms of *P. americana* was undertaken, including *P. drymifolia* Schlechtendal & Chamisso, *P. floccosa* Mez, *P. gigantea* L. O. Williams, *P. gratissima* C. F. Gaertner var. *oblonga* Meisner, *P. nubigena* L. O. Williams, *P. paucitriplinervia* Lundell, and *P. steyermarkii* C. K. Allen. Except for the type of *P. steyermarkii*, all these types share rather erect, sinuous trichomes on the abaxial leaf surfaces, sometimes sparse, sometimes dense. Leaves of the type of *P. steyermarkii* are entirely glabrous, but its inflorescence axes and flowers have extended, sinuous trichomes. In addition, the inflorescence structure in *P. steyermarkii* is botryoid, whereas in *P. pallescens* it is thyrsoid. Thus, none of the binomials mentioned above correspond to the taxonomic concept of *P. pallescens*.

A review of other type material in *Persea* from Mexico and the Mesoamerican region resulted in the recognition of *P. perglauca* Lundell and *P. parvifolia* as additional, novel synonyms of *P. pallescens*. *Persea perglauca* was differentiated (Lundell, 1975) by the combination of glaucous abaxial leaf surfaces, short inflorescences (up to 2 cm), and small flowers (ca. 2 mm long), all of which are characters that correspond to *P. pallescens*. The glaucous bark of the twigs, considered typical of *P. perglauca* by van der Werff (2002), is not such; although it is not seen frequently, the feature is certainly present in some specimens (mainly from Oaxaca) of *P. pallescens*. Other than that, there are not additional characters to distinguish *P. perglauca* from *P. pallescens*. The two species are similar in leaf shape (elliptic with apex acute to short acuminate and base cuneate) and size

(7–12 × 2.5–4 cm), in inflorescence and flowers (discussed above), in the abaxial surfaces of young leaves and tepals that are characteristically appressed pubescent, and in the pubescent pistil.

In the case of *Persea parvifolia*, Williams (1977) pointed out the glabrous condition of the leaves and ovary as two of the distinctive features of the species. However, a careful inspection of the type material showed that he overlooked the sparse appressed pubescence of the abaxial leaf surface and the long scattered hairs of the pistil. The size and shape of the leaves as well as inflorescence and flower morphology also correspond to *P. pallescens*. It is worth mentioning that Tetla, the place where the type of *P. parvifolia* was collected, is just 13 km north of Orizaba, the approximate source area of *P. pallescens* type material.

During the survey of type material involved in this work, it was noticed that no holotype was designated for *Persea pallescens*. Mez (1889: 218) cited two specimens of the collection *F. Müller 90*, one from the herbarium of the Vienna Natural History Museum (W), the other from the herbarium of the Russian Academy of Sciences (LE). The syntype at W was destroyed during World War II, and I therefore designate the extant specimen at LE as the lectotype.

According to data recovered from herbarium specimens, *Persea pallescens* is a small tree (mainly 4–8[18] m) found frequently in mixed montane forests of the eastern Sierra Madre in Mexico (San Luis Potosí, Hidalgo, Querétaro, Puebla, Veracruz, and Oaxaca), growing mostly between 1650 and 1900 m on limestone-derived soils. The species is disjunct in central Guatemala, growing in the eastern mountains of Baja Verapaz. Flowering occurs from March to April, and mature fruits are found in the autumn and winter. The fruit is 3–3.5 cm in diam. and round or slightly pyriform in shape.

Specimens examined. GUATEMALA. **Baja Verapaz:** Unión Barrios, E of Km 154, C. L. Lundell & E. Contreras 19217 (F, MO). MEXICO. **Hidalgo:** 3.5 km al N de Ixtlahuaco, S. Montes 51 (XAL). **Oaxaca:** 16 km al W de Totontepec, E. Ramírez 549 (MEXU, MO, NY); 7 km al E de Totontepec, E. Ramírez 357 (MEXU, MO); 11 km al N de Totontepec, R. Torres 10429 (MEXU, MO); Totontepec, J. Rivera 189 (MEXU, MO); Cerro Horqueta, San Pedro Ocotepic, J. Rivera, S. Salas & L. Schibli 537 (XAL); 39 km al S de Valle Nacional, J. Rzedowski 34025 (ENCB, XAL); 2.5 km al E de Tanetze, R. Aguilar 878 (OAX, XAL); entre La Laguna y brecha límite de Talea, S. Acosta 2774 (OAX, XAL); 3 km al SW de La Esperanza, A. Rincón 524 (MEXU, XAL); 9.5 km E of the Mitla–Choapam rd. on rd. to Zacatepec, D. Breedlove 64755 (CAS); a 200 m de Plan de Guadalupe, por la terracería a San Martín Zoquiapan, X. Munn 2018 (XAL). **Puebla:** Tetelilla, Barranca del Río Tozán, E. Meza 314 (XAL); 4 km al N de Tetelilla, Hueyapan, J. L. Contreras 4488 (XAL). **Querétaro:** 1.5 km al SE de El Pemoche, Landa de Matamoros, H.

Rubio 2245 (IEB, MO, XAL); same locality, *H. Rubio 2326* (IEB, XAL). **San Luis Potosí:** 5 km al NE de Ahuacatlán, *J. Rzedowski 10070* (ENCB, XAL). **Veracruz:** Alseseca, *F. Ventura 18363* (MO, XAL); Cerro La Cima, entre Plan de Las Hayas y Tierra Blanca, *G. Castillo & H. Narave 2168* (XAL); Cerro San Cristóbal, 5 km al SW de Orizaba, *J. Rzedowski 12183* (ENCB, XAL); cerca de Apanga, Zongolica, *A. Rincón 1354* (XAL); La Cima, Plan de Las Hayas, *R. Hernández 1588* (MEXU).

KEY TO MESOAMERICAN SPECIES OF *PERSEA* WITH A PUBESCENT PISTIL

- 1a. Pubescence of abaxial leaf surface made of minute, straight appressed hairs, scattered (better seen on young leaves) *P. pallescens*
- 1b. Pubescence of abaxial leaf surface made of rather erect sinuous hairs, mostly noticeable by the naked eye (particularly on young leaves), scattered to dense 2
- 2a. Bracts at the base of the inflorescences lanceolate to ovate; staminode apex trullate to ovate in outline. *P. americana*
- 2b. Bracts at the base of the inflorescences widely ovate to depressed ovate; staminode apex elliptic to lanceolate in outline *P. schiedeana*

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